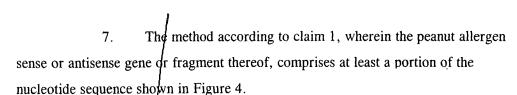




## WE CLAIM:

- 1. A method for producing a transgenic peanut plant with reduced or undetectable allergen protein content in the seed, comprising the steps of:
  - (a) transforming a recipient peanut plant cell with a DNA construct comprising a peanut allergen antisense gene, or a peanut allergen sense gene, or a combination thereof, or fragments thereof;
  - (b) regenerating a peanut plant from the recipient cell which has been transformed with the DNA construct; and
- (c) identifying a fertile transgenic peanut that produces seeds having reduced or undetectable allergen protein content.
- 2. The method of claim 1, wherein the peanut allergen gene is selected from the group consisting of *Ara* h1, *Ara* h2, *Ara* h3, *Ara* h4, *Ara* h5, *Ara* h6, and *Ara* h7.
- 3. The method of claim 1, wherein the recipient cell is transformed by the *Agrobacterium*-mediated method.
- 4. The method of claim 1, wherein the recipient cell is transformed by the biolistic method.
- 5. The method according to claim 1, wherein the peanut allergen sense or antisense gene, or a fragment thereof, comprises at least a portion of the nucleotide sequence shown in Figure 2.
- 6. The method according to claim 1, wherein the peanut allergen sense or antisense gene, or fragment thereof, comprises at least a portion of the nucleotide sequence shown in Figure 3.

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- 8. The method according to claim 1, wherein the peanut allergen sense or antisense gene, or fragment thereof, comprises at least a portion of the nucleotide sequence shown in Figure 5.
- 9. The method according to claim 1, wherein the peanut allergen sense or antisense gene, or fragment thereof, comprises at least a portion of the nucleotide sequence shown in Figure 7.
- 10. An isolated polynucleotide molecule comprising the peanut allergen antisense gene, or fragment thereof, operably linked to a promoter and a terminator, the promoter and terminator functioning in a peanut cell.
- 11. The polynucleotide molecule of claim 10, wherein the antisense gene, codes for an RNA molecule that is complementary to the mRNA molecule coded for by a peanut allergen protein gene selected from the group consisting of *Ara* h1, *Ara* h2, *Ara* h3, *Ara* h4, *Ara* h5, *Ara* h6 and *Ara* h7.
- 12. The polynucleotide molecule according to claim 11, wherein the antisense gene has the nucleotide sequence selected from the group consisting of the nucleotide sequences shown in Figures 3, 4, 5 and 7.
- 13. The polynucleotide molecule according to claim 10, wherein the promoter is selected from the group consisting of constitutive, inducible and tissue-preferred promoter.
- 14. The polynucleotide molecule according to claim 13, wherein the promoter is a seed-preferred promoter.
  - 15. A vector comprising the polynucleotide molecule of claim 10.





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- 16. A peanut plant cell comprising the polynucleotide molecule of claim 10.
  - 17. A peanut plant comprising the cell of claim 16.
  - 18. A seed produced by the plant of claim 17.
- 19. An solated polynucleotide comprising the promoter of the Ara h2 gene having the nucleotide sequence shown in Figure 9
- 20. An isolated polynucleotide consisting essentially of the nucleotide sequence selected from the group consisting of the nucleotide sequences shown in Figures 3, 4, 5 and 7.
- 21. A method for producing a transgenic peanut plant with reduced or undetectable allergen protein content in the seed, comprising the steps of
- (a) identifying a homologous region common to more than one *Ara* h allergen gene;
- (b) cloning the homologous region in a vector modified for peanut transformation, wherein the homologous region is operably linked to a promoter;
  - (c) transforming a recipient peanut plant cell with the vector; and
- (d) identifying a regenerated fertile transgenic peanut plant that produces seeds having reduced or undetectable allergen protein content.

The state of the court had not been the